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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,180	06/22/2001	Thomas Brinz	10191/1925	7242

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EXAMINER

SNAY, JEFFREY R

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/887,180

Applicant(s)

BRINZ ET AL.

Examin r

Jeffrey R. Snay

Art Unit

1743

-- The MAILING DATE of this c mmunication appears n th cover sh et with the c rresp ndence address --

Peri d f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The limitation of claim 7 must be added to the specification or cancelled from the claims.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 8-9 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Singh (WO 94/10533).

Singh disclose an optical sensor which includes all of the presently recited features. Particular, a sensor probe is disclosed as including a sensitive layer formed of glass spheres coated with an analyte sensitive dye. The coated glass spheres are immobilized in a polymer matrix, which matrix can be polydimethylsiloxane. See claim 8 of Singh. The glass spheres are about 5 microns in diameter (claim 8). Singh further teach that the analyte sensitive dye can, in addition to glass spheres, be coated onto polymeric particles such as PMMA (page 3, lines 15-17). Regarding the presently recited limitation that the particles are hollow, see Singh at claim 8 disclosing that the

glass spheres are porous. Such porosity of the particles in Singh anticipates the broad claim language of being hollow in that the spheres of Singh include inner voids.

Regarding the presently recited limitation that the sensor material is free of a plasticizer, see the examples of preparation in Singh at 19-24 which show that no plasticizer is added in forming the disclosed sensor layers. Regarding the presently recited thickness of 20 to 100 microns, see Singh at page 3, line 30, teaching sensor layers having thickness of 20-30 microns.

Regarding the method of instant claim 13, see Singh at the abstract teaching the use of the disclosed sensors for the method of detecting, for example, CO₂.

Regarding the presently recited substrate, see Figure 2 of Singh disclosing the sensor matrix being positioned on a substrate (14), which substrate is formed by an optical fiber for transmitting light to and from the sensor.

Regarding the presently recited radiation source (instant claim 1) and detector (instant claim 12), see Singh at page 2, line 34 to page 3, line 2, which incorporates by reference US application entitled "Optical Sensor for Fluid Parameters" filed on 10-23-1992. The incorporated application was issued as US Patent 5,335,305, issued 08-02-1994. It is noted that the disclosure of Singh of an optical sensor material attached to an optical fiber for the purpose of optically detecting a gaseous analyte inherently teaches the provision of a light source and detector as such components would have been required in using the sensor device of Singh in the manner disclosed. Nonetheless, the incorporated patent application, now US patent 5,335,305, clearly shows a radiation source and detector connected to the optical sensor material (see

Figure 16 and column 10, lines 19-27). Since the application was incorporated by reference in the disclosure of Singh, the disclosure of the incorporated application is as if expressly disclosed in Singh.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 10 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Singh.

Singh teaches that the particle-encapsulating polymer matrix is porous in order to permit diffusion of analyte into the matrix to reach the indicator material (see page 9, first full paragraph). As such, the sensor of Singh inherently included gaps between the particles.

Furthermore, the examples disclosed by Singh at pages 19-24 appear to result in sensor layers having indicator material in an amount which is not more than 25% by volume of the sensor layer. Alternatively, it would have been obvious to one of ordinary skill in the art to optimize the amount of indicator in the matrix in order to provide the desired sensitivity to a particular concentration of analyte expected.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Singh in view of Markle et al.

Singh fails to teach the use of tetraoctylammonium hydroxide as an indicator material. However, Singh does teach the use of Phenol red as a carbon dioxide indicator (see page 12, lines 1-5).

Markle et al teach a preferred indicator for carbon dioxide in an optical sensor which comprises Phenol red and tetraoctylammonium hydroxide, which combination is

disclosed as providing a "rapid response to changes in carbon dioxide" (column 11, lines 22-32). It would have been obvious to one of ordinary skill in the art to substitute the indicator of Markle et al for that of Singh in order to enhance the desired sensitivity of detection for carbon dioxide, as per the teaching of Markle et al.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Barnard et al teaches the use of scattering particles in an optical sensor in order to enhance the sensitivity.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. Snay whose telephone number is (703) 308-4032. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (703) 308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Jeffrey R. Snay
Primary Examiner
Art Unit 1743